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| 10/541,395 | 07/01/2005 | Jean-Francois Mainguet | 4590-429 | 6341 |

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| EXAMINER |
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RICE, ELISA M

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| ART UNIT | PAPER NUMBER |
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2624

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09/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/541,395

Applicant(s)

MAINGUET, JEAN-FRANCOIS

Examiner

Elisa M. Rice

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 12-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/1/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

1. The following is a quotation of 37 CFR 1.75(d)(1):

The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

Claim 16 and claim 17 are objected to under 37 CFR 1.75(d)(1), as failing to conform to the invention as set forth in the remainder of the specification.

Regarding claim 16, the claim recites in part the following: "acquiring using the image sensor g an image line or a small number of image lines and reconstructing an overall print image". The term "sensor g" is not discussed in the specification. For purposes of examination, Examiner will view the "g" as a typo and examine the claim as simply "acquiring using the image sensor an image line or a small number of image lines."

Also, in claim 16, line 3, the claim recites in part the following: "relating to the skin of a finger whose print using the same devices," it is unclear whether the "finger whose print" is a type and the specification does not clarify this. For purposes of examination, Examiner will read the claim as such: "relating to the skin of a finger whose print uses the same devices."

Appropriate correction is required.

Regarding claim 17, the claim recites in part the following: "the full spectral information is collected several times". The term "several", however, is not specified in the specification and therefore Examiner will view this as meaning "more than one" as defined by Merriam-Webster.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12-20, 22 and 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lapsley et al. (US 5,737,439) and Mainguet (US 6,289,114 B1).

Regarding claim 12 and 16, Lapsley discloses a person recognition device, comprising ("anti-fraud biometric scanner", see the abstract): a scanning fingerprint image sensor on one base (Fig. 7, numeral 411)

the image sensor and the spectral information sensor being designed to function alternately ("The fingerprint imager light source illuminates the object and the fingerprint imager CCD forms an image of the object being scanned. The fingerprint imager light source is then turned off, and the microprocessor (not shown) uses the first and second LEDs and photodetector to determine whether or not the object being scanned exhibits characteristics of blood flow consistent with that of a live human in accordance with the methods of the invention. In an alternate embodiment, a CMOS image array replaces the CCD.", Lapsley, column 7, line 42) ;

and a sensor for spectral transmission information (Fig. 7, 403) relating to the skin of the finger whose print is recorded by the image sensor ("The deception detection step extinguishes the first light source, measures the light energy emitted by the object while the first light source is extinguished", Lapsley, column 2, line 54) . In this case, the object comprises among other things the skin of the finger. The deception detection (Fig. 6, 303) includes a sensor for spectral transmission information relating to the skin of the finger whose print is resting on and recorded by the image sensor in Figure 7.

Lapsley does not disclose:

a means for reconstructing an overall print image by correlation between partial images obtained during a relative movement between the finger and the sensor

However, Mainguet teaches a means for reconstructing an overall print image by correlation between partial images obtained during a relative movement between the finger and the sensor ("The reconstruction of the complete image of the fingerprint is obtained by the superimposition of successive images given by the sensor during its relative shift with respect to the finger", Mainguet, column 3, line 31).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Lapsley's biometric scanner with the method of reconstructing an overall print image by reconstruction from partial images as taught by Mainguit in order to provide images of fingerprints from smaller sensor areas and thus "reduce the cost of manufacturing" and increase "the number of individuals that can be authenticated by a silicon wafer" as stated by the Mainguet reference in column 2, line 18.

Regarding claim 13, the combination of Lapsley and Mainguet discloses the device as claimed in claim 12, wherein the fingerprint image sensor (Lapsley, Fig. 7, numeral 410; Lapsley, Fig. 9, numeral 510) and the spectral transmission information sensor has light-emitting diodes (Lapsley, Fig. 1, numeral 102) and photodiodes (Lapsley, Fig. 1, numeral 103).

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The combination of Lapsley and Mainguet does not disclose wherein the fingerprint image sensor is located on a silicon chip.

Mainguet discloses wherein the fingerprint image sensor ("Fig. 3 gives a schematic view of an exemplary integrated circuit constituting the fingerprint sensor according to the invention", Mainguet, column 5, line 29) is located ("The integrated circuit is formed by a semiconductor substrate 20 which in principle is a silicon substrate. In this substrate there are formed circuits 22 for the reading and processing of electric charges. These circuits are for example CCD (charge-coupled devices working by charge transfer) circuits or C-MOS circuits. They are made according to the standard technologies for the manufacture of integrated circuits made of silicon," Mainguet, column 6, line 32).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the fingerprint scanner of Lapsley's fingerprint scanner circuitry on a silicon chip as expressly taught in Mainguet's fingerprint-reading system because such circuits offer smaller size and lower cost.

Regarding claim 14, the combination of Lapsley and Mainguet discloses the device as claimed in claim 13, the combination of Lapsley and Mainguet discloses wherein the photodiodes and the light-emitting diodes are located on the same chip as the print image sensor ("The imaging surface 307 of the fingerprint scanner is attached to an enclosure 308 that secures the first LED 302 and second LED 306 and the photodetector 303.", Lapsley, column 6, line 67).

Regarding claim 15, the combination of Lapsley and Mainguet discloses the device as claimed in claim 13, wherein the light-emitting diodes and the photodiodes are arranged symmetrically with respect to an axis (Lapsley, Fig. 1, see 102 and 103).

Regarding claim 17, the combination of Lapsley and Mainguet discloses the method as claimed in claim 16, wherein the full fingerprint is read several times (Fig. 2, "Collected Enough Samples") and the full spectral information is collected several times, alternately (Fig. 2) and the consistency between the different detected information is checked ("The microprocessor next determines if it has accumulated a sufficient number of samples from the A/D converter to detect whether the object being scanned exhibits characteristics of blood flow consistent with that of a live human. In one embodiment, this decision is made based on the absolute number of samples acquired. In another embodiment, it is based both on the number of samples acquired and on their quality.", Lapsley, column 4, line 46).

Regarding claim 18, the combination of Lapsley and Mainguet discloses the method as claimed in claim 16, wherein a part of the fingerprint corresponding to a specific finger sector is read ("partial images of the complete fingerprint", Mainguet, column 3, line 31), the spectral information corresponding to this sector is read (extracts characteristics such as the frequency and amplitude of the signal, Lapsley, column 4, line 62), and a

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full image of the print is subsequently reconstructed from the partial images ("The reconstruction of the complete image of the fingerprint is obtained by the superimposition of successive images given by the sensor during its relative shift with respect to the finger", Mainguet, column 3, line 31).

Regarding claim 19, the combination of Lapsley and Mainguet discloses the method as claimed in claim 18, comprising checking that the fingerprint corresponding to a finger sector is consistent with the spectral information corresponding to this sector or to another sector for the person who is intended to be recognized ("The result of the frequency and amplitude detection are then made available for a determination by the microprocessor as to whether or not the frequency and amplitude values of the signal fall within minimum and maximum levels that are consistent", Lapsley, column 5, line 16.) If the results from the blood flow determination using the spectral information do not fall within this range, it is determined that spectral information corresponding to the fingerprint is not consistent for the person who is intended to be recognized.

Regarding claim 20, the combination of Lapsley and Mainguet discloses the device as claimed in claim 12, wherein the print sensor is a capacitive sensor ("the fingerprint scanner comprises a two-dimensional capacitance detector, forming a fingerprint image using capacitance.", Lapsley, column 7, line 8).

Regarding claim 22, the combination of Lapsley and Mainguet discloses the device as claimed in claim 12, wherein the spectral information acquisition comprises a measurement at a wavelength used for the detection of blood ("The result of the frequency and amplitude detection are then made available for a determination by the microprocessor as to whether or not the frequency and amplitude values of the signal fall within minimum and maximum levels that are consistent with blood flow in a live human. Thus, by measuring the variation in transmitted or reflected red light, the invention rapidly determines if the object being scanned exhibits characteristics of blood flow consistent with that of a live human.", Lapsley, column 5, line 16).

Regarding claim 23, the combination of Lapsley and Mainguet discloses the device as claimed in claim 14, wherein the light-emitting diodes and the photodiodes are arranged symmetrically with respect to an axis (Lapsley, Fig. 1, see 102 and 103).

3. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lapsley et al. (US 5,737,439), Mainguet (US 6,289,114 B1), and Eguchi et al. (US 4,728,186).

Regarding claim 21, while the combination of Lapsley and Mainguet discloses wherein the device as claimed in claim 12, the combination of Lapsley and Mainguet does not disclose wherein the same light source is used both for the fingerprint acquisition and for the spectral information acquisition.

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However, Eguchi discloses wherein the same light source is used both for the fingerprint acquisition and for the spectral information acquisition (column 11, line 15-line 56; Fig. 22).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Lapsley and Mainguet to utilize Eguchi's single light source used for both the fingerprint acquisition and for the spectral information acquisition in order to reduce the number of components and thus the manufacturing cost.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elisa M. Rice whose telephone number is (571)270-1580. The examiner can normally be reached on 8:00a.m.-5:30p.m. EST Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571)272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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